1-14. (Cancelled)

15. (Cancelled)

16. (Cancelled)

17. (Cancelled)

18. (Cancelled)

19. (Cancelled)

20. (Currently Amended) A particle beam apparatus having a detector system according to claim [[15]] 46.

21. (Cancelled)

22. (Currently Amended) The particle beam apparatus according to claim [[21]] 20, wherein said electrostatic deflecting field and said magnetic deflecting field are arranged offset from each other in the direction of said optical axis of the particle beam apparatus.

23. (Previously Presented) The particle beam apparatus according to claim 22, comprising two magnetic deflecting fields and an electrostatic deflecting field.

24. (Cancelled)

25. (Cancelled)

26. (Currently Amended) The particle beam apparatus according to claim [[25]] 20, wherein said electrode comprises one of grid electrode or a perforated diaphragm.

27. (Currently Amended) The particle beam apparatus according to claim [[24]] 20, further comprising a beam guiding tube for said particle beam apparatus wherein said detection system is arranged outside said beam guiding tube behind a hole

through a wall of said beam guiding tube or in a region of an interruption of said beam guiding tube.

28. (Previously Presented) The particle beam apparatus according to claim 20, wherein said electrostatic field and said magnetic field(s) are settable independently of each other.

29. (Previously Presented) The particle beam apparatus according to claim 20, wherein said target structure is at the potential of said beam guiding tube.

30. (Currently Amended) The detection system according to claim [[15]] 20, wherein said particle beam apparatus comprises a scanning microscope.

31. (Previously Presented) The particle beam apparatus according to claim 20, wherein said particle beam apparatus comprises a scanning microscope.

32 (Cancelled)

33 (Cancelled)

34 (Currently Amended). The detector system according to claim [[33]] 47, wherein said region remote from said axis comprises a half ring and said region near said axis comprises a web connecting ends of said half ring remote from said axis.

35 (Cancelled)

36 (Cancelled)

37 (Cancelled)

38 (Currently Amended). The particle beam apparatus according to claim [[37]] 47, wherein said electrostatic deflecting field and said magnetic deflecting field are arranged offset from each other in the direction of said optical axis of the particle beam apparatus.

39 (Currently Amended). The particle beam apparatus according to claim [[37]] 47, comprising two magnetic deflecting fields and an electrostatic deflecting field.

40 (Currently Amended). The particle beam apparatus according to claim [[32]] 47, wherein said detection system includes an electrode.

41 (Currently Amended). The particle beam apparatus according to claim [[40]] 47, wherein said electrode comprises one of a grid electrode or a perforated diaphragm.

42 (Currently Amended). The particle beam apparatus according to claim [[37]] 47, wherein said electrostatic field and said magnetic field are settable independently of each other.

43 (Currently Amended). The particle beam apparatus according to claim [[33]] 47, wherein said target structure is at a potential of said beam guiding tube.

44 (Currently Amended). The detection system according to claim [[33]] 47, wherein said particle beam apparatus comprises a scanning microscope.

45 (Currently Amended). The particle beam apparatus according to claim [[33]] 47, wherein said particle beam apparatus comprises a scanning microscope.

46 (New). A detector system for a particle beam apparatus having an optical axis defining a direction and a beam guiding tube, said detector system comprising:

a target structure arranged within the beam path of said particle beam apparatus, said target structure having a near axis region adjacent to said optical axis and a region remote from said optical axis, said near axis region consisting of a material being strongly electron converting,

said region remote from said optical axis being off-set in the direction of said optical axis from said near axis region,

an electron detector system for detecting conversion electrons emitted from said near axis region, said electron detector system being arranged, measured in the direction of said optical axis, closer to said near axis region than to said region remote from said optical axis,

said electron detector system having an electrode being at a positive electrostatic potential compared to said beam guiding tube, said electrostatic potential generating a strongly localized field within said beam guiding tube so that conversion electrons emitted from said near axis region are extracted by said localized field towards said electron detector system, whereby conversion electrons emitted in other regions than said near axis region are not extracted towards said electron detector system, and

a deflecting system comprising at least an electrostatic deflection field and a magnetic deflecting field, said electrostatic and magnetic deflecting fields being aligned perpendicular to each other.

47 (New). A particle beam apparatus comprising:

a particle source emitting charged particles,

a particle optical system defining a primary particle beam of charged particles emitted by said particle source to irradiate a sample with said primary particle beam,

said particle optical system defining an optical axis and having a beam guiding tube, and

a detector system detecting charged particles emitted by said sample due to said irradiation of said sample with said primary particle beam, said detection system comprising:

a target structure arranged within the beam path of said particle beam apparatus, said target structure having a near axis region adjacent to said optical axis and a region remote from said optical axis, said near axis region consisting of a material being strongly electron converting and said region remote from said optical axis consisting of a weakly electron converting material,

an electron detector system for detecting conversion electrons emitted from said near axis region, and

a deflection system comprising at least an electrostatic deflection field and a magnetic deflecting field, said electrostatic deflection field and said magnetic deflection field being aligned perpendicular to each other, and

said defection system deflecting particles emitted from said sample on varying regions of said target structure.